

**Claims:**

1. A complement inhibitor molecule that inhibits the classical complement pathway and the alternative complement pathway.
2. A complement inhibitor molecule according to claim 1 which inhibits cleavage of C5  
5 by classical and alternative C5 convertases.
3. A complement inhibitor molecule that inhibits cleavage of C5 by a C5 convertase.
4. A complement inhibitor molecule of claim 3, wherein the C5 convertase is a C5 convertase of the classical pathway.
5. A complement inhibitor of claim 3, wherein the C5 convertase is a C5 convertase of  
10 the alternative complement pathway.
6. A complement inhibitor according to any one of claims 2 to 5 which inhibits cleavage of C5 by binding to C5.
7. A complement inhibitor molecule according to claim 6 complexed with C5.
8. A complement inhibitor molecule according to any one of claims 1 to 7, which is  
15 derived from a haematophagous arthropod.
9. A complement inhibitor molecule according to claim 8 wherein said haematophagous arthropod is a tick.
10. A complement inhibitor molecule according to claim 9, wherein said tick is *Ornithodoros moubata*.
- 20 11. A complement inhibitor molecule according to claim 10, comprising amino acids 19 to 168 of the amino acid sequence in Figure 4 or a functional equivalent thereof.
12. A complement inhibitor molecule according to claim 10, comprising amino acids 1 to 168 of the amino acid sequence in Figure 4 or a functional equivalent thereof.
13. A complement inhibitor molecule that inhibits the classical complement pathway and  
25 the alternative complement pathway, wherein said complement inhibitor is:
  - a) a protein comprising amino acids 19 to 168 or amino acids 1 to 168 of the amino acid sequence in Figure 4;
  - b) a homologue of a protein as defined in a) having at least 60% identity thereto; or

- c) an active fragment of a protein as defined in a) above or of a homologue as defined in b) above.
14. A complement inhibitor molecule that inhibits cleavage of C5 by a C5 convertase, wherein said complement inhibitor is:
- 5 a) a protein comprising amino acids 19 to 168 or amino acids 1 to 168 of the amino acid sequence in Figure 4;
- b) a homologue of a protein as defined in a) having at least 60% identity thereto; or
- c) an active fragment of a protein as defined in a) above or of a homologue as defined in b) above.
- 10 15. A complement inhibitor molecule according to claim 14 which inhibits cleavage of C5 by direct binding to C5.
16. A complement inhibitor molecule according to claim 15 complexed with C5.
17. An antibody which binds to a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16.
- 15 18. A fusion protein comprising a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 17 that is genetically or chemically fused to one or more peptides or polypeptides.
19. A fusion protein according to claim 18 wherein said complement inhibitor molecule or functional equivalent thereof is genetically or chemically fused to a marker domain.
- 20 20. A fusion protein according to claim 19 wherein said marker domain is a radiochemical tag.
21. A nucleic acid molecule comprising a nucleotide sequence encoding a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16 or a fusion protein according to any one of claims 18 to 20.
- 25 22. A nucleic acid molecule according to claim 21 comprising nucleotides 53 to 507 of the nucleotide sequence in Figure 4 or a functional equivalent thereof.
23. A nucleic acid molecule according to claim 21 comprising nucleotides 1 to 507 of the nucleotide sequence in Figure 4 or a functional equivalent thereof.

24. An antisense nucleic acid molecule which hybridises under high stringency hybridisation conditions to a nucleic acid molecule according to any one of claims 21 to 23.
25. A vector comprising a nucleic acid molecule according to any one of claims 21 to claim 24.
26. A host cell comprising a nucleic acid molecule according to any one of claims 21 to 23, an antisense nucleic acid molecule according to claim 24 or a vector according to claim 25.
27. A method for preparing a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16 or a fusion protein according to claims 18 to 20 comprising culturing a host cell according to claim 26 under conditions whereby said protein is expressed and recovering said protein thus produced.
28. A method of identifying a ligand of a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16 comprising the step of:
- (a) contacting the complement inhibitor molecule or functional equivalent thereof with a candidate ligand; and
  - (b) detecting the formation of a ligand-complement inhibitor molecule complex.
29. A composition comprising a complement inhibitor molecule according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20, or a nucleic acid molecule according to any one claims 21 to 23 in conjunction with a pharmaceutically acceptable carrier.
30. A composition according to claim 29 further comprising an adjuvant.
31. A complement inhibitor molecule according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20, or a nucleic acid molecule according to any one of claims 21 to 23 for use in therapy.
32. A method of treating an animal suffering from a complement-mediated disease or disorder or preventing an animal developing a complement-mediated disease or disorder comprising administering to said animal a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20, a nucleic acid molecule according to any one

of claims 21 to 23, or a composition according to claim 29 or 30 in a therapeutically or prophylactically effective amount.

33. Use of a complement inhibitor molecule according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20 or a nucleic acid molecule according to any one of claims 21 to 23 in the manufacture of a medicament for treating or preventing a complement-mediated disease or disorder.
34. A method according to claim 32 or use according to claim 33 wherein said disease or disorder is Alzheimer's disease, rheumatoid arthritis, glomerulonephritis, reperfusion injury, transplant rejection, sepsis, immune complex disorder or delayed-type hypersensitivity.
35. A method of vaccinating an animal against a disease or disorder transmitted by a haematophagous arthropod comprising administering to said animal a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20, a nucleic acid molecule according to any one of claims 21 to 23, or a composition according to claim 29 or claim 30.
36. Use of a complement inhibitor molecule or a functional equivalent thereof according to any one of claims 1 to 16, a fusion protein according to any one of claims 18 to 20, or a nucleic acid molecule according to any one of claims 21 to 23 in the manufacture of a vaccine for protecting an animal against a disease or disorder transmitted by a haematophagous arthropod.
37. A method according to claim 35 or use according to claim 36, wherein the haematophagous arthropod is *O. moubata*.
38. A method or a use according to claim 37 wherein the disease or disorder is relapsing fever, African swine fever or West Nile fever.
39. Use of a complement inhibitor according to any one of claims 1 to 16 or a fusion protein according to claims 18 to 20 as a diagnostic tool.
40. A method for inhibiting the classical and alternative complement pathways in a cell, tissue or non-human organism comprising administering to said cell, tissue or organism, a complement inhibitor according to any one of claims 1 to 16, a fusion

protein according to claim 18-20, or a nucleic acid molecule according to any one claims 21-23.